



US005808073A

United States Patent [19]**Böhm et al.**[11] **Patent Number:** **5,808,073**[45] **Date of Patent:** **Sep. 15, 1998**[54] **PREPARATION AND PURIFICATION OF
PERYLENE-3,4-DICARBIMIDES**

486 491 11/1929 Germany .

OTHER PUBLICATIONS[75] Inventors: **Arno Böhm**, Mannheim; **Willi Helfer**,
Friedelsheim, both of GermanyChemical Abstracts 85:20928, abstract of Nagao, Shikizai
Kyokaishi (1976), vol. 49(1), pp. 29–34.[73] Assignee: **BASF Aktiengesellschaft**,
Ludwigshafen, GermanyChemical Abstracts 123:85915, abstract of Quante, Angew.
Chem., Int. Ed. Engl. (1995), 34(12), pp. 1323–1325.[21] Appl. No.: **860,925**Chemical Abstracts 123:202037, abstract of DE 4338784,
May 18, 1995.[22] PCT Filed: **Jan. 12, 1996**

Chima 48 (1994)503–505, Langhals.

[86] PCT No.: **PCT/EP96/00117**

Chemical Society of Japaoan 52, 1723–1726 (1979), Nagao.

§ 371 Date: **Jul. 21, 1997***Primary Examiner*—John Kight§ 102(e) Date: **Jul. 21, 1997***Assistant Examiner*—D. Margaret M. Mach[87] PCT Pub. No.: **WO96/22331***Attorney, Agent, or Firm*—Oblon, Spivak, McClelland,
Maier & Neustadt, P.C.PCT Pub. Date: **Jul. 25, 1996**[57] **ABSTRACT**[30] **Foreign Application Priority Data**

Jan. 20, 1995 [DE] Germany 195 01 737.4

[51] **Int. Cl.⁶** **C07D 221/18**; C07D 401/04;
C07D 407/04; C07D 409/04[52] **U.S. Cl.** **546/39**; 106/498[58] **Field of Search** 546/39; 106/498[56] **References Cited****U.S. PATENT DOCUMENTS**5,405,962 4/1995 Muellen 546/27
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Preparation of perylene-3,4-dicarbimides by reaction of a perylene-3,4,9,10-tetracarboxylic acid or of the corresponding anhydrides with a primary amine by performing the reaction in the presence of a tertiary nitrogen base as solvent and of a transition metal or transition metal salt as catalyst, and purification of perylene-3,4-dicarbimides obtained by reaction of a perylene-3,4,9,10-tetracarboxylic acid or of the corresponding anhydrides with a primary amine by heating the crude products initially in N-methylpyrrolidone and then treating the resulting N-methylpyrrolidone adducts in the presence of an organic diluent with a base, and if desired subjecting the subsequently isolated products to an additional treatment with an aqueous acid, and also novel perylene-3,4-dicarbimides and their use as fluorescent dyes, pigments or pigment additive precursors.

10 Claims, No Drawings